

COMMISSION OF CONSERVATION

CANADA

AN ADDRESS

on

**AGRICULTURAL WORK
IN ONTARIO**

by

C. C. JAMES,

Deputy Minister of Agriculture for Ontario

at

**The Second Annual Meeting of the
Commission of Conservation,
Quebec, January 17th,
1911**



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AGRICULTURAL WORK IN ONTARIO

BY C. C. JAMES.

Deputy Minister of Agriculture for Ontario.

AGRICULTURAL organization in Ontario began after the calling of the first legislature in 1792. Lieutenant-Governor Simcoe in his planning for the development of the province assisted in the organization, and probably was the prime mover. Down to 1846, societies here and there throughout the province gave stimulus to the growing of grain, the importation of stock and improvements in agricultural methods. In 1846, a provincial association was formed, through which, in time, associations for the improvement of the various pure breeds of stock came into existence. Encouragement and direction were given by the government and on the confederation of the provinces in 1867 increased interest was manifested. The first important step forward was made in 1874 when the Agricultural College at Guelph was founded. The Royal Commission on Agriculture in 1881 traversed the province from end to end, investigating conditions and arousing interest, and the publication of their report in five volumes contained a mass of information and made suggestions that have produced an effect lasting to the present. Following immediately after, and as a direct outcome of the Commission, there was organized the Ontario Bureau of Industries, whose first business it was to collect and publish reports on crops, live stock, and general agricultural conditions. When, in 1888, a department was formed separate from the other executive branches of the government, this Bureau became the nucleus of the department, and to the latter was added gradually the work carried on by the various provincial associations.

Branches
of the
Department

As the work along various lines developed and new fields were opened up, it had to be systematized and the department is now organized into nine branches, each in charge of a responsible directing official

These branches are as follows:

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1. Ontario Agricultural College;
2. Ontario Veterinary College;
3. Agricultural and Horticultural Societies;
4. Live Stock Branch;
5. Farmers' and Women's Institutes Branch;
6. Dairy Branch;
7. Fruit Branch;
8. Colonization Branch;
9. Statistics and Publications Branch.

In addition to the above, there is work of various kinds which is still in the formative and growing condition, but in time it will, no doubt, be organized into separate branches with an official in charge of each. Farm forestry and district or departmental representative work may be particularly mentioned. As showing the expansion of the work, it may here be mentioned that in 1890 the total expenditure under agriculture and immigration was \$177,014.00, and in 1910 it had increased to \$748,349.00. These do not include expenditures on capital account. Deducting revenue, the net expenditures were \$156,134 in 1890 and \$634,892 in 1910.

**A Work
of
Education**

The work of a provincial Department of Agriculture is educational. The foregoing list of branches shows a great variety in the energies and expenditures. An acquaintance with the geological and geographical conditions of Ontario and a knowledge of the composite nature of the people of the province will show how varied are the agricultural lines of work and why it has been found necessary to develop a department with many branches. There are lines of work not suggested by the division above given but which are included. Thus, under the Horticultural Branch, city and town improvement societies and vegetable growing are taken care of, and apiculture and entomology are a part of the Fruit Branch. Poultry work comes in under Live Stock. We have in Ontario soils and climates in great variety, and we also have a farming community of a complex nature. The original settlers were of varied origin. England, Scotland, and Ireland contributed extensively. French-Canadian settlements are to be found in the east, southwest and in the newer districts of the north. German settlers are to be found in large numbers in a half

dozen counties of the middle west. Further, it is to be noted that Ontario, through favourable natural conditions, has become a great manufacturing province. Agriculture, as a consequence, is an interesting problem.

A Stationary Rural Population The rural population of Ontario, in 1909, stood exactly at the same figure that it did in 1872, viz., 1,050,000. In the latter year, however, the total town and city population was just about what Toronto holds to-day, 375,000. The urban population is now over one and a quarter million. During these years, in addition to this urban increase of nearly 900,000 people, we have had the trek to the great west now entering on its twenty-fifth year. Taking both of these movements into consideration, the wonder is that the agricultural population has stood the strain as well as it has. Looking over such statistics as are available and studying a number of districts personally as I have been able to do during the past few years, I have come to the conclusion that agriculture in Ontario has entered upon an upward movement that is already making itself felt. Rural population showed a steady increase from Confederation in 1867 to 1886, when the Canadian Pacific Railway was opened. From that year the decrease was just as marked down to 1906. Now we are on the up-grade again, though the increase as yet is not very great. In addition, there is a decided increase in the total farm values of the province and the total values of farm products also are showing most encouraging increase year by year.

The Solution: Intensive Farming Intensive agriculture and the production of high grade food are what we are aiming at. Those who have studied the problem are aware that it is not an easy task. Again and again we are advised of what the well-farmed countries of Europe are doing—and it is well to keep this example before our people—but, of course, the conditions are quite different. There, land is dear and labour is cheap; here, land is cheap and labour is dear. It becomes, therefore, an interesting and complicated problem to work out with cheap land and dear labour, plans and methods of work that will result in procuring adequate reward for labour and at the same time conserve our soil resources. As far as Ontario is concerned at the present time and with

our present style of farming, it is not so much a question of conserving our soil as conserving our labour. What we are aiming at is to make the labour now being expended more effective. We have some millions of acres that need draining. If drained, they could be worked more easily and they would produce more abundantly,—hence, a campaign for underdrainage is being carried on. We have a few thousand trees well cared for, productive of good fruit, but we have (I think I am not putting it extravagantly) millions of trees neglected, uncared for, whose production is uncertain and more or less unprofitable. We have been demonstrating in the past few years that in the neglected apple orchards we have one of our greatest assets,—hence, our orchard demonstration campaign. We have over one million milch cows on the farms producing on the average not over 4,000 pounds of milk a year. If 200,000 of the unprofitable animals were exterminated, there would be a saving of labour, a saving of food, and a decided increase in profits,—hence, our dairy campaign. And so we might go on along other lines. The more intelligent use of labour is the key to success in Ontario agriculture.

**How the
Department
Does its
Work**

Now let us see how the Ontario Department of Agriculture is trying to assist in this movement. The Ontario Agricultural College was started in 1874. For many years it led a precarious existence. It had few students and few friends. It did not get a grip upon the agricultural community. To-day and for some years past, it has been full to overflowing. I have seen it with 134 students. For some years, over 1,000 have taken courses of one kind or another. How was this brought about? First, the members of the teaching staff went out from the College to address farmers' meetings and to become personally acquainted with the farmers and their work. Second, the experimental work of the College was extended to several thousand farms through the work of the Experimental Union. Third, farmers have been brought to the College, 40,000 every year, to see for themselves what is being done. In short, the College in isolation was of little use; when, however, College and farm were brought into direct contact, sympathy, support and co-operation followed.

Let me give you another example. Ontario has become a great dairy province, noted for its production of cheese. Ten or twelve

years ago its cheese could be classed as good, bad and indifferent. There were dairy schools, there were dairy associations, there were dairy reports and bulletins. These were necessary and effective as far as they went, but the trouble was they did not go far enough, they did not reach the unprogressive, indifferent cheese maker and milk producer. For some years we have had over thirty trained expert cheese and butter makers going from factory to factory, demonstrating on the spot, giving that help which can be effective only when it is personal and applied at the critical time. What is the result? Those who are in the trade tell us that Ontario cheese and Ontario creamery butter never graded higher than they did in 1910. Moreover, we have been able to enact a law that after January 1st, 1911, no one can have charge of a factory as chief maker unless he holds a certificate of qualification, and every factory is registered. All this is a direct result of taking the best dairy methods right into the factories and gradually we are bringing our instructors right into the dairy barns of the milk producers.

**Reaching
the
Farmer**

It is a natural sequence from this experience that if we are to get all or a majority of our farmers to drain their land, to sow the best seed, to care for their orchards, to test their cows, to raise only profitable stock, and, in brief, to get the best results for the expenditure of labour, we must get into close personal touch with them and give sympathetic direction to their work. And so, in 1907, we were enabled to try out the experiment of personal instruction on a comprehensive scale. A Department of Agriculture located at the capital of the province is necessary for direction. An Agricultural College at some place convenient of access is all right; it must be located somewhere and we must have such an institution for training the men who are to do the teaching and directing. Experimental farms are needed for trying out certain lines of work and for getting results that will be of practical use. But, after many years of experience, we found that these were limited in their usefulness, they alone would never regenerate the great mass of the farmers,—they would help those who wanted to be helped, who were seeking help and who would get help because they appreciated the value of such assistance. but the great majority of the farmers would be moved by none of

these things. The Department of Education also wished to inaugurate some plan of agricultural instruction in rural schools. Through the united efforts of the two departments, we finally decided on the plan of locating graduates of the Agricultural College in various counties as teachers of agriculture and leaders in agricultural improvement. In other words, we established branch offices of our department and moved the Agricultural College nearer to the farmer's home. We made it possible for our representative to go into the farmer's field, his orchard, his dairy, and, what gave him greatest confidence, right into his home. Further, he was a resident, not a transient, and as soon as the formalities of becoming acquainted were over, he won the farmer's confidence by his sincerity and his ability to help.

In 1907, the government started work in six counties; in 1910, fifteen counties were provided with offices, teachers and assistants. So great has been the success and so much appreciated the work that the question now is how to meet the demands from other counties. The men for the work are carefully selected. Their salaries are provided through the Department of Education. The office expenses, salaries of assistants and incidentals are paid through the Department of Agriculture. By statute, the county council is required to make a grant of \$500 each year towards expenses. Each of the men is attached to a high school where he carries on each winter a short course in agriculture varying in length from one month to three months. In time, we hope to have permanent classes established. Up to the present, the great work has been that which has been planned at, and directed from, the central office: short courses in live stock and seed judging, drainage demonstrations, seed fairs, public school competitions in growing small crops, demonstrations through reviving old orchards, fertilizer experiments and the carrying on of improved methods by the farmers themselves on their own farms. Let me again emphasize this last point,—the great hope of improvement in the average farmer lies, not through sending him a report or pamphlet, not through talking at him in an institute meeting, not through doing something for him on an experimental farm, but through helping him to do some work on his own farm wherein he gets improved financial results through his own efforts. This is the secret of success in the work.

The general aim of this work is to bring the best agricultural methods close to the farmer, to get his sympathy, to arouse his interest, to stimulate him to better methods. When a man is selected for a county he is told to study his people, their condition and their needs, and to arrange his work accordingly. He is given a fairly free hand, though, of course, he is in close touch with the Department and all its branches. The first result noticed is the increased interest manifested by the farmers. Probably for the first time they realize that the complicated government organization has been created for a specific purpose and that purpose is to assist the farmer to a better and more prosperous living. Once that feeling is abroad, the application comes easy. And now the whole agricultural organization comes into use. This "man on the spot" brings into his county all those resources of the government departmental organization about which the farmer had some hazy knowledge but whose usefulness he had questioned, and "professors" and "experts" become real men like themselves whose object is not to pose as men of exclusive distinction and drawers of salaries, but men able and willing to give real help. With the farmer, the age of talk has gone by, the day of demonstration is here. We have a thorough organization of the agricultural forces along many lines. Now we are bringing all this to bear upon the farmer's work and the results are coming through the means of direct demonstration. During 1910, we had over one hundred men engaged in various ways, planning drainage systems, teaching how to make cheese and butter, pruning and spraying trees, selecting seeds and supervising growing crops of all kinds, organizing co-operative associations and helping in the marketing of products.

**The
Results**

And what is the result? Farmers who were indifferent or opposed to government interference and who criticized the expenditure have become enthusiastic, the attendance at practical demonstrations has increased in an astonishing degree, and there is an awakening along agricultural lines such as we have never known before. There is something in the agricultural air that indicates progress. Intensive agriculture and specializing in production are noticeable, and, where this movement is permanently fixed, there is a decided increase in farm values. The two contributing elements are, first, demonstration

of better methods; and, second, the permanent location of qualified men to inaugurate and direct the movements. The government began this movement in 1907. We now have fifteen counties equipped with representatives. We aim at carrying on the work in every county and district in the province. It costs money of course to do this work,—\$1,200 for salary and about as much more for the office, assistant and running expenses,—but there is no expenditure of public money that produces greater results. The fact is, that it renders so effective all the other expenditures for agricultural purposes. I venture this prediction, that when we have the province of Ontario manned in all counties and districts and fifty representatives with their assistants have got down to work, we can double the output of the farms of Ontario in the next ten years. It is a work worth while spending the money of the people upon, for the whole people will receive the benefit.

County Extension Work

The statements in the preceding paper as to the value of demonstration work are general. With a view to giving further information and showing the varied lines of work possible, the following condensed reports from county representatives, of the work carried on in four counties, are added as contributing valuable information and suggestions.

- Dundas County** SUMMARY OF WORK.—1. Making the personal acquaintance of as many citizens of my district as possible and the revealing of myself to them that they may have confidence in me.
2. Advisory work from office, personal and by correspondence.
 3. Three months' Short Course for boys in Collegiate Institute.
 4. Organizing and conducting of 3 day Short Courses (5 Short Courses, 1 Fruit Institute).
 5. Organizing of Farmers' Clubs; supervision of these Clubs.
 6. Assistance in conducting excursions to places of learning—two to Macdonald College during 1910.
 7. Preparatory work leading up to organization of Horticultural Societies.

8. The interesting of Agricultural Societies and farmers in Standing Field Crop Competitions. (Three were started in 1910).
9. Distribution to good farmers of seed grain from prize winning fields in Field Crop Competition in 1909.
10. Demonstrations (three) in spraying of mustard.
11. Making of drainage surveys for farmers. Drainage demonstrations.
12. Demonstration of value of underdrainage by draining of low-lying portion of school grounds, 6 acres.

RESULTS.—

1. Land ready for seeding and was sown 3 to 4 weeks earlier than other low-lying land of vicinity.
2. Oats and barley ripened 3 to 4 weeks earlier than other fields of same crops. Yields large.
3. Large crops of sugar beets and mangolds,—30 to 51 tons per acre according to variety, on what was before a useless swamp.
4. Large crops of potatoes, yield varying from 340 to 591 bushels per acre according to variety.
13. Conducting of demonstration plots on school grounds. Plots 3 acres in extent.

Points demonstrated in 1910:

1. That large crops could be grown after underdraining on what was before wet land. Whole scheme a demonstration of value of underdrainage.
2. Experiments in dates of seeding on (1) drained land, (2) undrained land.
3. Experiment on rates of seeding.
4. Different methods of sowing alfalfa.
5. Growing of alfalfa on low drained land. Will require 2 or more years yet to complete demonstrations.
6. Test of twelve different varieties of oats to show yield, date of maturity, strength of straw, freedom from rust, and to give farmers an opportunity of seeing different varieties grown under the same conditions.
7. Test of twenty varieties of corn to give farmers an opportunity of seeing nature of variety, amount of fodder, yield of grain, date of maturity, etc.

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8. Test of mangolds, carrots, turnips,—a special effort to grow large crops of roots in order to interest dairy farmers in growing such crops.
9. Value of uncommon crops as rape, kale, field cabbage. Test of same. Millets, variety tests.
10. Test of 20 varieties of potatoes—yield of from 340 to 351 bushels per acre obtained with late varieties.
11. Sale at market prices of 100 bushels of above potatoes for seed purposes.
12. Experiments with insecticides and fungicides.
14. Conducting of fertilizer experiments on three different farms.
15. Conducting of stock judging competition for boys at fall fairs, four in all.
16. Exhibit at County Fair, Morrisburg.
Insects, plant diseases, weeds, products of sprayed and unsprayed orchards, spraying materials, apparatus, etc., produce of Demonstration Plots, distribution of bulletins, etc.
17. In 1909, during Fair, actual drainage work going on. Taking of levels, grading, etc., demonstrated.
18. Demonstration of good orchard culture by personal (assistant and myself) care of four orchards; constant supervision and direction of care of another.

RESULTS.—

Orchard No. 1: Marked difference in yield and quantity of fruit on sprayed and unsprayed part.

Area,—1 1-3 acres; 43 trees.

Total yield, 143 bbls.

Unsprayed part,—1 row of trees through centre of orchard—total yield of those 5 trees, 7 bbls.; less than 1 bbl. of No. 1 apples.

Net returns to owner, \$400, (apples sold on trees). Cost of spraying material, \$7.90.

No record kept of cost of pruning or cultivation.

In unsprayed orchards in neighbourhood, apples scarce and of worst quality.

Orchard No. 2: (four miles distant from No. 1.)

14 trees McIntosh, 16 trees Fameuse—\$350 worth of

apples harvested at market price. No check trees kept. Cost of spraying material \$5.69.

In nearby orchard from which 100 bbls. were sold in 1909, less than 10 bbls. were of inferior quality in 1910. In adjoining orchard, apples worthless. (This is the case with all unsprayed McIntosh and Fameuse apples this year). Fruit from this orchard taken by Dominion Department of Agriculture to World's Fair, at Brussels.

Orchard No. 3: (Two miles from orchard No. 1 and orchard No. 2).

No records kept, but fruit on sprayed trees 15 in number, first-class. One unsprayed tree had not an apple although there was plenty of blossoms and the fruit set well all through this section in 1910.

Orchard No. 4: Fruit clean.

In the above four orchards work was done by my assistant or by myself.

Orchard No. 5: (Located 8 miles from other nearest demonstration orchard).

Pruning, care and spraying done under our direction. Area was 3 acres, McIntosh.

An orchard which seldom before grew marketable fruit.

Fruit sold on trees for \$350, and graded nearly all firsts and seconds. Three check trees—fruit useless. In unsprayed orchards of neighbourhood, fruit useless.

**Lanark
County**

Lanark county exports no grain; it is not as yet a fruit county and its climate and soil do not lend themselves to the production of special crops. It is primarily a grazing county and the principal industry is thus largely under the supervision of the Dairy Instructor. Consequently, it is not easy to show big results in any one line through the work of this office. With the stimulation of production, the elimination of waste and the promotion of agricultural interests in general as our governing policy, we have, however, endeavoured to make the most of our opportunities and steadily to increase the sphere of influence of the office.

In this report no attempt is made to touch upon the work of the office as an information bureau. This has been pretty well covered in a previous report and it is sufficient to say that the number and variety of questions handled has greatly increased with each season, as has also the area represented by those making use of the office. Neither have I referred to the school work nor to meetings addressed within the county and at outside points.

During the fall of 1909, we added three new Farmer's Clubs to our list—Ramsay Township, Carleton Place and Pakenham. These Clubs all held meetings every three or four weeks, and in addition to the interest and enthusiasm which they awakened among the farmers themselves, they afforded us additional opportunities for keeping in touch with the more remote parts of the county. Our largest Club, South Lanark, which has had three successful seasons, has been one of our most important mediums in our work locally. While the discussion of farm topics and topics of general interest has constituted one of its most important features, we have, in addition, made use of it in the following ways during the past two seasons:

1. To promote rural telephone service throughout the riding;
2. To carry on co-operative buying of clover and grass seed through local seedsmen in order to secure purity and No. 1 quality;
3. To import seed corn on the ear;
4. To import tile in carload lots;
5. To establish one variety of potatoes as the representative variety for this section;
6. To run an excursion to Macdonald College in August, 1909;
7. To inaugurate an annual ploughing match, October, 1910.

We have now two cow testing associations in the south riding, both doing good work. Since the inauguration of the first one three years ago, we have looked after the secretary's duties in this office.

Certainly nothing undertaken by the Department through us has increased our sphere of influence so materially as the holding of Short Courses, conducted by such men as President Creelman, Prof. G. E. Day, Prof. C. A. Zavitz, Dr. Reed, T. G. Raynor, C. M. McRae and L. H. Newman. Perth, Carleton Place, Almonte and Lanark Village have already been favoured with these, the two latter in the spring of 1910. At the present time, we are organizing one in Smiths' Falls. Each event brings us in touch with anywhere from

300 to 800 farmers. The direct benefits have been noted in innumerable ways in subsequent seasons.

In June, 1910, we held four very successful Weed and Seed Meetings at Almonte, Middleville, Macdonald's Corners and Maberly, addressed by Mr. Simpson Rennie.

In Lanark county, we have some 90,000 acres of swamp and slash land, much of which is now being brought under cultivation with the opening up of municipal and award drains. In a great many instances, this muck land has not given satisfactory results after the first few years. For three seasons we have been conducting extensive fertilizer experiments on different types of muck with a view to rendering these areas profitably productive. These experiments have been conducted at different points throughout the county and have been under our direct supervision. On the whole, the results have been most encouraging. As all of our experiments this year are with root crops some of which have not yet been harvested, I am unable to give figures for this year's results. In one case where oats were grown, the yield was increased from 15 bu. to 40 bu. per acre, at a cost of about \$5 per acre. At the same point, the influence carried over from the preceding year made possible an increase of 15 bu. over the unfertilized. Equally good results were obtained last year with millet, rape and mangolds at other points.

During the past season, we have concentrated on underdrainage work. In the county as a whole, and particularly in South Lanark, very little underdrainage had been done previous to 1907, and when we first took up this work, we found four obstacles barring progress in this particular line:

1. A lack of appreciation of the benefits to be derived;
2. Lack of technical knowledge in laying out systems;
3. The absence of tile factories in any part of the county;
4. Lack of experience in digging drains to grade, laying tile, etc., and inability to secure competent labour to do this work.

During the seasons of 1908 and 1909, we overcame the first difficulty to a certain extent in our propaganda work by means of addresses, newspaper articles, demonstrations, etc.

The second difficulty was met by offering our services free of expense in making surveys, laying out systems, preparing plans, etc. During the fall of 1909, some of the systems laid out by us were

partially installed by hand labour. One of these fields made an excellent demonstration field, as it chanced to lie beside a leading road and had previously been deemed impossible to drain satisfactorily. This spring, when adjoining fields lay sodden with water, the drained field was dry and in first-class condition. It was in shape for seeding fully three weeks before neighbouring fields, but was kept for corn. This corn crop, grown where corn had never been grown previously, was conceded to be the best crop within a radius of several miles. Not only was it tall and vigorous, but it was uniform over the entire field and was well matured. Needless to say, we had a great many requests for drainage assistance in that section this year, while the owner of the field himself put in nearly a carload of tile this fall.

The difficulty in obtaining tile in the Perth district was overcome through our local Farmers' Club. By buying co-operatively in carload lots we have been able to lay down tile in Perth at a cheaper price than they can be bought right in the yard at many tile factories.

This year, with another wet, backward May to back us up, we launched another drainage campaign, with the result that since the first of June we have devoted every available day and half day to drainage work in various parts of the county. An opportunity to secure the services of a steam ditcher from the province of Quebec assisted us in overcoming the fourth difficulty, and incidentally gave underdrainage the greatest impetus it has yet received in this district. The owner of the ditcher placed himself in our hands, took only such work as we laid out for him, followed our grades, etc., and stayed with us for two months, digging at the rate of at least 2,000 feet per day and as much as 3,000 when conditions were favourable. Breakages, due to our stony land, prevented us accomplishing as much as we might have in the time, but so delighted were the farmers with the work accomplished that it is probable that next year a ditcher will be owned co-operatively here.

Corn has become one of the staple crops in this county and in many sections over seventy-five per cent. of the farmers have silos. Except where an occasional farmer selects Flint corn for seed, all of the seed corn is imported. Naturally, in bad seasons such as that of 1910, a great many farmers have been badly disappointed in their seed. This we have sought to overcome; first, by promoting buying on the cob; second, by testing samples for all local seedsmen; third, by attempt-

ing to develop a strain of Dent corn adapted to this locality. Buying on the cob has been followed up by the South Lanark Farmers' Club for the past two seasons. Comparing the seed obtained by the members this year with that sold in bulk, the new method was worth a great many dollars to those who took advantage of it. In the spring of 1909 and 1910, we tested seed corn for all local seedsmen as soon as their shipments arrived, and practically all used our reports as their only guarantee. More than one lot which failed to come up to standard was shipped back. In our seed selection work, we started with a strain of corn developed for early maturity in Wisconsin. During the past two seasons, we have grown an acre of this corn on the "ear to the row" plan and have selected each year for early maturity. We have succeeded in maturing first-class seed both years and the crop has excelled everything in its neighbourhood not only in maturity, but also in type. The demand for seed exceeded the supply last year and probably will this year.

Ever since this office was opened, we have been emphasizing the value of alfalfa. This year fully one-fifth of the farmers in the Perth district have a small patch of alfalfa, and while all have not made a success of it, the possibility of growing it here successfully has been amply demonstrated. In the spring of the year, alfalfa enquiries greatly exceed all others received. Last year we forwarded upwards of fifty applications for nitro culture and directed the forwarding of many others. We have been experimenting with the crop ourselves and have succeeded in growing it without a nurse crop.

**Prince
Edward
County** The experimental work last summer as well as this summer has consisted in conducting practical experiments on various farms throughout the county. Experiments with fertilizers on tomatoes, sweet corn and potatoes were conducted a year ago. This work was taken up more extensively this season. Seven experiments with sweet corn, five with potatoes and twelve with tomatoes, were carried on in different parts of the county. Farmers growing these crops, and particularly canning crops, are unable to obtain sufficient manure and are required to purchase commercial fertilizers. Up to the present time, they have been buying mostly ready mixed and cheap fertilizers. We arranged, that these experiments should be made by the most careful farmers,

who are expected to report to us and also to the Farmers' Club meetings in the winter. In most cases they have cared for the plots and kept accurate records. Wherever possible, the experiments were conducted near the road and attracted much attention. The amount of commercial fertilizers used will be greatly increased another year.

Tests were conducted with varieties of corn on twenty-four different farms, in some cases sweet corn, others Flint and others Dent. Tests were made with Common Mandacheuri and O. A. C. No. 21 barley on fourteen different farms. The barley was distributed to students who had taken the Short Course last winter, and there are already many enquiries as to where to obtain seed of these varieties for next season. Two varieties of peas were distributed, some of the seed having been obtained from the Winter Fair and from the prize-winning lots in the Field Crop Competition.

Quite a number of farmers have been conducting experiments in connection with the Farmers' Clubs, the Club assigning a certain experiment to each of several members. In some sections they have been testing fertilizers. For instance, at Wellington, one farmer has treated an acre of tomatoes with 100 lbs. of muriate of potash and 300 lbs. of acid phosphate. On an acre directly alongside and treated alike, he added 100 lbs. of sodium nitrate, on the rest of the field no fertilizer was applied. He has kept an accurate record of the work and found that he can profitably use the fertilizer and will do so to a larger extent another year. Other farmers in the same section are experimenting with fertilizers on potatoes, strawberries, tomatoes and celery. One of our experiments this season was with fertilizers for celery on muck soil.

Experimental or demonstration plots were conducted in connection with the Collegiate Institute. In addition, variety tests were made of mangolds, tomatoes, millets and corn, also fertilizer tests with potatoes. We had a breeding block of sweet corn, known as Pearce's Improved Evergreen, a variety which originated in this county and which is sought after by the canning factories. We obtained some seed from Mr. Pearce and made some selections from the block grown this year. The main point considered in selecting was to obtain ears with deeper kernels, thus giving a larger proportion of

corn. We expect to carry this work further another year and to get the managers of the different factories interested.

The fruit growers of the county have been very much interested in spraying. The diseases and pests affecting the trees and fruit are so many that they realize it is impossible to produce fruit of superior quality otherwise. There are about two hundred fruit growers in the county who sprayed during the past season. We did not conduct spraying demonstrations on our own account, but kept busy visiting those who were spraying, and endeavoured to get them to do the work as nearly right as possible.

In 1909, tests were made with four brands of lime-sulphur, viz., Vanco, Rex, Niagara and Grasselli brands. No difference in the value of these materials was noticeable. We also tried using an excess of lime in Bordeaux mixture. Although the mixture was more difficult to apply, it seemed to be very effective in destroying the Oyster Shell Scale.

In the spring of 1910, we tested the comparative value of arsenite of lime and arsenate of lead when used as an insecticide along with lime-sulphur as a summer spray. The former was most effective in controlling the Codling Moth, but when applied in greater quantity than recommended resulted in severe burning of the foliage. In spite of the latter, the fruit growers here prefer to use it on account of the cheapness of preparation.

This year the orchards which have been sprayed and cared for have an abundance of first-class fruit. Preparations are being made already for next year's work and much of the material is already ordered.

Mr. Whitford Collier of East Lake has an orchard of twenty acres, consisting of Baldwins, Cranberry Pippin, Spies, Bottle Greening, and Ben Davis. This spring he purchased a complete spraying outfit and four barrels of lime-sulphur mixture. He claims that the spray was worth \$400 to him this season.

There is another very good object lesson in another locality, at Albury. Mr. Wm. Peck owns an old orchard of about 7 acres. A year ago this orchard was very seriously affected with Leaf Blister Mite and the fruit was ruined by Codling Moth. This year the orchard was sprayed thoroughly and sold for \$1,500, while a year ago, when there were more apples, it brought the owner less than \$400.

The Leaf Blister Mite and the Oyster Shell Scale are possibly the worst enemies of the fruit grower in this county. The lime-sulphur mixture seems to control these almost entirely. The concentrated material is very expensive, costing approximately \$13 per barrel laid down in Picton. Through the introduction of the home-boiled lime-sulphur, the farmers are more apt to take hold of the spraying. It is much cheaper, as it can be prepared at less than one-third the cost of the commercial.

We visited fourteen different sections of the county last spring and gave demonstrations in the preparation of the home-boiled concentrated lime-sulphur. During the past season this spray gave fully as good, and some claim better, results than the commercial article. In one section where a demonstration was given, they boiled 15 barrels and have already ordered three times the material for next year. At Wellington, they purchased 3,500 lbs. sulphur, 1,750 lbs. lime, making 35 bbls. of concentrated solution at a cost of less than \$1.50 per bbl.

A Short Course in stock and seed judging was held in Ameliasburgh on March 14, 15 and 16, at which it was estimated that 1,200 farmers attended. Discussions were held and demonstrations given regarding light and heavy horses, dairy and beef cattle, swine, and farm crops, viz., wheat, oats, barley, corn, hay, pasture and fodder crops.

The Fruit Institute held in Picton on December 14, 15 and 16 was well attended, there being an attendance of upwards of 400 at one of the sessions. Special emphasis was placed on fruit production and the planting, cultivating and spraying of the orchard. Demonstrations were given to show the best methods of packing apples and the preparation of spray materials, particularly the lime-sulphur wash.

All the fall fairs in the county have been attended, viz., Picton, Roblin's Mills and Demorestville. Judging demonstrations were conducted at Picton and Roblin's Mills Fairs for young men, as well as weed and weed seed naming contests and apple naming contests.

Educational exhibits were shown at Picton and Roblin's Mills in 1909 and also in 1910. The exhibit consisted of weeds and weed seeds, insects and diseases of fruits and crops, the results of the experiments conducted. I distributed literature of the Department of Agriculture, and acted in the capacity of judge at two fairs each season.

Judging demonstrations were held at North Port, Hillier, South Bay, Bethel, Crofton and Milford. Horses and dairy cattle were judged and discussed. The average attendance at each place being 45. In most cases evening meetings were held.

Two seed meetings were held in June, 1909, at Hillier and Northport, attendance 45 and 50 respectively. In 1910, special seed meetings were held at Cherry Valley, Milford and Mountain View, with an average attendance of 55.

I have attended all the Farmers' Institute meetings, Agricultural Society meetings, Farmers' Club meetings, and cheese meetings held in the county. There are 13 organized Farmers' Clubs in the county. I attended a large number of the meetings of each Club and took part in the discussions. One of the Clubs in the county developed into a Fruit Growers' Association. It purchased all the spraying materials and supplies for the members during the past season, and is making preparations for packing and marketing their crop next year. There are but sixteen members in this Association, but I think it will grow rapidly. We spent a good deal of time with the members during the spraying season, assisting them in the preparation and application of spray materials, and testing the mixtures and pumps. Each member of this Association speaks in the highest terms of the results obtained from spraying. In Wellington district, there are few fruit growers who will not be spraying another year.

I attended the annual meetings of the cheese factories at Bloomfield, Wellington, Allisonville, Hillier, Consecon, Ameliasburgh, Rednersville, Quinte, Massassaga and Mountain View factories, and was also present at the meeting of the Cheese Board of Trade.

During the last school year, we conducted two classes in agriculture in the Collegiate Institute. In the Long Course were six pupils, while in the six weeks or Short Course there were thirty registered. The coming year we are planning to extend the Short Course to ten weeks and we have every reason to believe the attendance will be greater.

We endeavoured to encourage the rural schools to give attention to school gardens. The Mountain Views school had a very good garden and the people of that section have taken a deep interest in the work. The teacher, Mr. J. M. Root, came to us for advice, and

afterwards carried out the suggestions given. The garden contained plots for each class of corn, oats, barley, goose wheat, millets, roots, vegetables and flowers. It was maintained in first-class shape and created much interest. Indeed, several other teachers have expressed their intention of taking up this work another year.

Dr. Morley Currie, M.P., donated \$50 for prizes for the best essay and collection of weeds from each township in the county, the plans and conditions of the contest being made out by us. Five of the seven townships of the county had entries, and the competition succeeded in interesting a large number of young men in a study of farm weeds. A number of teachers also became interested in the contest. Two of the contestants and winners of this competition told me that they had decided to attend the agricultural course at the beginning of the year.

Underdrainage has been practised but little in this county. Interest was created as a result of a drainage survey on a farm near Picton, and discussion at a demonstration held on the same farm in July, 1909. I have knowledge of 12,000 tiles being laid as a result. This year there were more calls for drainage surveys and plans than we could attend to. Twenty-four applications, averaging 100 acres, have been received, and of these thirteen have been completed. Considerably more drainage would be done, but labour cannot be obtained. We made surveys and plans only where the farmers were prepared to go ahead with the work. A ditching machine will likely be purchased before spring, and from present indications there will be many more calls another year. I cannot cite any outstanding instance where underdrainage has been a benefit, as the work has been so recently undertaken. Last fall we took levels for a main drain across three farms; the drain was completed late last year, and the farmers had this year more than double the crop they ever had on the same land.

I have assisted in making plans for farm barns, and particularly in laying out stables, planning for ventilation, and the construction of silos.

Waterloo
County **FARMERS' CLUBS:** We have about twelve Clubs in operation in the county, meeting once or twice a month during the winter, with some continuing during the whole year. These meetings are of an educational nature and are

addressed by the members themselves with an occasional outside speaker on the programme. The Club affords opportunities for public speaking, for acquiring the benefit of the experience of other farmers in the community, it acts as a social centre for the district, neighbours become better acquainted, and in many ways proves very beneficial. Different schemes have been initiated in various Clubs. One has been instrumental in getting a rural telephone system among the farmers and in starting a continuation class in the village school. Another has revived the ploughing match and instituted an annual neighbourhood banquet. Others have various co-operative schemes. Each Club is working out plans for the betterment of its members. Of course, I attend as many meetings as possible, and as they are all held in the evening and are in different parts of the county, at times it means considerable travelling at night. In view of this, it is impossible for me to attend all. However, each Club Secretary sends me a full report of each meeting, together with copies of some of the papers read and a synopsis of the discussions. Consequently, I keep in close touch with all the clubs over the county. I have used some of these reports and papers for full page accounts of the various meetings in our local weekly papers, copies of which were sent to the members of all the Clubs. We are holding a conference of the officers of these Clubs in the near future in order that ideas may be exchanged, and preparation is being made for the organization of more Clubs.

SHORT COURSES: These courses have been of two or three days' duration and were for the purpose of a practical study of live stock and seeds. I have been favoured with the services of the professors of the Ontario Agricultural College for this work. These courses have been held at Ayr, Galt and Elmira. The average attendance at each has been between 300 and 400 farmers. We have used the best stock obtainable and have had as teachers the highest authorities, so that these courses are easily recognized as of immense value in advancing agricultural education at home. And just here is an excellent example of the value of the Farmers' Clubs. In the necessary preparation work for these courses, such as obtaining stock, buildings, advertising, etc., the organized Clubs have been the main feature and, in a large measure, to their efforts the success obtained has been due.

DEMONSTRATIONS: Practical demonstrations in caring for

orchards have been held. Parts of orchards in various sections of the county were sprayed and results noted by the owners. At some of these sprayings, the men of the neighbourhood were invited to be present and explanations were given as to the methods and reasons for the different sprayings. At some of these orchard meetings the subject of farm weeds was also discussed, the actual weeds of the district from the fields being used for illustration purposes.

EXPERIMENTS WITH COMMERCIAL FERTILIZERS: We have had about thirty experiments on farms in different parts of the county in order to determine the value of the fertilizers for certain purposes. These experiments consisted of applying the different fertilizers in various combinations and with various crops both on muck soils and on typical fields of the farm. The material has been prepared for the experimenter and directions given, so that we have had very little difficulty in getting good results from the men who have co-operated with us in this work. All of these experiments were visited some time during the season.

RURAL SCHOOLS: During the last two years, we have had three of the rural schools near Galt unite in a competition in growing farm crops and in making nature collections. This year, we have had six of the schools near Ayr doing the same work. The results were exhibited at what we called a Rural School Fall Fair. From an educational standpoint, I believe some of the best activities of young boys and girls on the farm have resulted from this work. As far as possible, the pupils' plots at their homes were visited during the summer. In driving about the county I sometimes take the opportunity of visiting the rural schools and of addressing the pupils. I have also helped some of the teachers in connection with their school gardens and nature study.

FARMERS' INSTITUTES: Each year I have been on the programme of all the Institute meetings in both the north and the south ridings. During the winter practically one month was spent at these meetings. We have induced many pupils each year to visit the Agricultural College at the time of the annual Institute excursion.

AGRICULTURAL SOCIETY: This society has given me large latitude in connection with certain features of the fall fair, and particularly in the pupils' department. This department is now exceptional-

ly educative not only for the boys and girls exhibiting but for the public as well.

In connection with the fall fairs we have had educational exhibits of our own, such as would be helpful to farmers seeking information. We have also held successful stock judging competitions for boys in connection with the fair. Our experimental plots were in the fair grounds. I have, in addition, had the opportunity of delivering addresses at the seed fairs of the agricultural society.

Besides the above, much detailed work of a more general nature has been done, such as the preparation of addresses for meetings, articles for the press, assisting the different Farmers' Clubs in their various activities, aiding the Women's Institutes, Horticultural Societies, Poultry Associations, etc. The office is used as the board-room for these societies. I have addressed the Teachers' County Convention, acted as judge in the Standing Field Crops Competition, and have endeavoured to be of assistance to all organizations connected with the rural communities. Mention should also be made of the individual assistance given to numerous farmers, both in the office and in my trips through the county.

EXPENDITURE OF THE ONTARIO DEPARTMENT OF AGRICULTURE FOR THE YEAR 1910

CIVIL GOVERNMENT (Agriculture):

Salaries.. . . .	\$ 23,187.50
Contingencies.. . . .	2,625.30
Total.. . . .	\$25,812.80

AGRICULTURAL COLLEGE AND MACDONALD INSTITUTE:

College salaries.. . . .	\$ 70,408.30
College expenses.. . . .	61,328.05
Institute salaries.. . . .	18,600.10
Institute expenses.. . . .	16,588.11
Farm department.. . . .	17,413.50
Field experiments.. . . .	12,150.22
Dairy department.. . . .	11,210.85
Dairy School.. . . .	7,101.52
Forestry department.. . . .	1,434.29

COMMISSION OF CONSERVATION

Poultry department.. . . .	5,010.53
Horticultural department	9,532.40
Soil Physics department.. . . .	3,999.27
Mechanics department.. . . .	1,041.39
Agricultural department.. . . .	749.96
Total.. . . .	\$236,568.85

VETERINARY COLLEGE:

Salaries.. . . .	\$ 18,424.45
Expenses.. . . .	13,554.43
Total.. . . .	\$31,978.88

AGRICULTURAL AND HORTICULTURAL SOCIETIES:

Salaries.. . . .	\$ 5,190.00
Contingencies.. . . .	1,931.79
Pure seed fairs.. . . .	380.70
Spring stock shows.. . . .	3,174.05
Grants to agricultural societies.. . . .	83,606.00
Field crop competitions.. . . .	6,986.61
Expert judges.. . . .	9,881.92
Grants to horticultural societies.. . . .	9,996.00
Ontario Vegetable Growers' Association.. . . .	800.00
Miscellaneous.. . . .	774.24
Total.. . . .	\$122,721.31

LIVE STOCK BRANCH:

Salaries.. . . .	\$ 6,262.50
Contingencies.. . . .	1,240.29
Winter Fair, Guelph.. . . .	9,500.00
Winter Fair, Ottawa.. . . .	7,500.00
Horse shows, grants.. . . .	2,475.00
Local poultry associations, grants.. . . .	2,024.93
Miscellaneous.. . . .	2,767.38
Total.. . . .	\$31,770.10

INSTITUTES BRANCH:

Salaries.. . . .	\$ 4,126.67
Contingencies.. . . .	4,166.39
Grants, services and expenses of lecturers.. . . .	26,449.19
Total.. . . .	\$ 34,742.25

DAIRY BRANCH: (Under charge of Institutes Superintendent).

Eastern Dairy School.. . . .	\$ 12,053.17
Grants to Dairy Associations	4,500.00
Instruction and inspection.. . . .	39,065.24
Miscellaneous.. . . .	2,177.17
Total.. . . .	\$57,795.58

AGRICULTURAL WORK IN ONTARIO

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FRUIT BRANCH:

Salaries..	\$ 3,140.00
Grants to associations..	3,850.00
Orchard spraying..	4,170.08
Fruit exhibitions..	4,500.42
Fruit Experiment Stations..	14,348.29
Orchard inspections..	3,775.17
Bee Keepers' Association, grant	450.00
Inspection of apiaries..	2,554.43
Entomological Society, grant..	1,000.00
Orchard surveys..	2,652.05
Contingencies..	1,399.39
Total..	\$41,839.83

FARM FORESTRY:

Purchase of waste land..	\$ 2,805.00
Wages..	3,877.15
Miscellaneous..	3,284.18
Total..	\$ 9,966.33

DISTRICT REPRESENTATIVES AND TEACHERS OF AGRICULTURE:

Salaries (paid by Dept. of Education)..	\$ 16,800.00
Services of Assistants and expenses (paid by Dept. of Agriculture)..	20,792.19
Total..	\$37,592.19

STATISTICS BRANCH:

Services and expenses..	\$ 3,763.90
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MISCELLANEOUS:

Reports and bulletins..	\$14,943.94
Milk Commission..	1,618.20
Corn Crowers' Association, grant..	500.00
Experimental Union, grant..	2,750.00
Demonstration Farm, N. Ontario..	7,317.44
Other expenditures..	2,266.17
Total..	\$ 29,395.75

COLONIZATION BRANCH:

Salaries (Toronto)..	\$ 5,757.67
Contingencies..	3,267.32
Work in Great Britain..	29,650.14
Pamphlets, advertising, etc..	18,094.91

COMMISSION OF CONSERVATION

Grants, bonuses and advances	25,923.35
Miscellaneous	1,528.27
Total	<u>\$24,221.56</u>
Grand Total, 1910	748,169.33
Revenue	113,457.09
Net Expenditure	<u>\$634,712.24</u>

APPROPRIATIONS FOR 1911.

Civil Government	\$41,850
Agricultural College	259,041
Veterinary College	32,488
Agricultural Societies Branch	125,505
Live Stock Branch	44,720
Institutes Branch	39,583
Dairy Branch	62,750
Fruit Branch	50,020
Farm Forestry	10,000
District Representatives	27,600
(Salaries additional)	\$22,800)
Statistics Branch	5,500
Immigration Branch	100,600
Demonstration Farm	8,000
Miscellaneous	30,259
Total	<u>\$837,907</u>
Expenditure on capital account	70,732

